What is claimed is:

1. A system for producing and recovering liquids at the surface of a well in fluid communication with a downhole gaseous and liquid hydrocarbon formation, the liquids being produced and recovered through a production tubing string within a wellbore, the system comprising:

the wellbore being perforated for fluid communication with the downhole hydrocarbon formation both above and bellow a gas-fluid interface separating hydrocarbon fluids from a gas cap above the fluids;

a surface gas flow pressure regulator and a surface pressure gauge on the casing well head annulus exit port for respectively controlling gas flow and pressure and measuring pressure while maintaining a predetermined flow pressure on the wellbore annulus;

a downhole injector for passing formation fluids by pressure differential through the injector and into the production tubing string while preventing gases from passing through the injector;

a downhole pump positioned within the production tubing string above the injector for pumping liquids to the surface;

the downhole pump for efficiently pumping liquid inflow through the production tubing string to the surface of the well; and

the wellbore with maintained direct fluid communication between the well and a formation gas zone and between the well and a formation hydrocarbon liquid zone beneath the gas zone, such that such gas pressure acts as a cap on the formation liquids to force the liquids out of the formation and through the injector toward the surface.

2. The system as defined in Claim 1, further comprising:

the downhole injector being positioned relative to the downhole opened hydrocarbon formation so that all incoming liquid hydrocarbons are efficiently and completely removed from the wellbore into the lower pressure production tubing string on to the surface for increased gaseous and liquid hydrocarbon recovery.

3. The system as defined in Claim 1, further comprising:

wherein the well has a surface gas flow meter for continually and comparatively measuring and monitoring the formation gas flow production, pressure and recovery for the most effective optimum gas flow pressure at the surface and periodically making and observing fluid level and gas-oil ratio test, while continually and comparatively measuring and monitoring the production and recovery of formation liquids through a surface metering facility for a combined total maximum gaseous and liquid hydrocarbon production and ultimate recovery, throughout the reservoir's formations total gaseous and liquid hydrocarbon recovery life for maximum hydrocarbon reserve value.

4. The system as defined in Claim 1, further comprising:

the surface gas flow pressure regulator and the surface pressure gauge for continually and controllably and comparatively regulating flowing formation gas production and pressure at a controlled flow pressure to retain a predetermined optimum formation gas pressure in an annulus about the production tubing string, and thereby on and within the downhole opened hydrocarbon formation, such that the gas pressure prevents solution gas within the liquid hydrocarbon in its formation and the wellbore from breaking out of solution, whereby maintaining its expulsive force, high mobility and low viscosity, and acts as a driving force to pass pressured higher pressure hydrostatic head liquids out of the formation and through the injector by pressure differential up into the lower pressure production tubing string to recover formation liquids at the surface, wherein total in place liquid hydrocarbons are maintained highly fluid and recoverable, thereby increasing related liquid hydrocarbon reserve value.

5. The system as defined in Claim 1, further comprising:

the wellbore annulus with a maintained predetermined formation gas pressure such that gas pressure acts as a driving force on all liquids to pass them through the injector by pressure differential up into the lower pressure production tubing string for formation fluid recovery at the surface, so that a liquid level is maintained in the wellbore at the injector liquid in take level for maximum free gas and pressurized fluid flow from all opened hydrocarbon formations for maximum gaseous and liquid hydrocarbon

recovery, whereby total gaseous and liquid hydrocarbon reserve recoverability and related value is increased.

6. The system as defined in Claim 1, further comprising:

the wellbore with maintained gas pressure in the annulus above the downhole injector intake liquid level as a driving force to maintain a predetermined liquid level in the lower pressure production tubing string for maximum artificial lift efficiency of incoming liquids on to the surface.

7. The system as defined in Claim 1, further comprising:

one or more gas lift valves as an alternative means for lifting liquids positioned along the production tubing string above the downhole injector for selectively, at a predetermined pressure, passing annulus gases through the production tubing string to raise incoming liquids in cycles as slugs of liquid to the surface through the production tubing string.

8. The system as defined in Claim 1, further comprising:

the wellbore opened with one or more horizontal and alternatively highly angled boreholes in a gas zone for maximum zone exposure and increased gas flow and recovery.

9. The system as defined in Claim 1, further comprising:

the wellbore opened with one or more horizontal and alternatively highly angled boreholes in a liquid hydrocarbon zone for maximum zone exposure and increased liquid hydrocarbon flow and recovery.

10. The system as defined in Claim 1, further comprising:

a check valve in the tubing string above the top of the injector; and the injector including an injector housing having a nominal outer diameter, a fluid responsive float open at the top and closed at the bottom and moveable with respect to the injector housing as a function of fluid density surrounding the float, and a shut off valve member

moveably responsive to the float for engagement with a shut off valve seat, the shut off valve member being spaced vertically below inside the injector housing from the check valve.

11. The system as defined in Claim 1, wherein the injector includes a sleeve-shaped filter screen for restricting at least 90% of solid particles of 30 microns or greater from passing through the filter screen.

12. The system as defined in Claim 1, further comprising:

the well head surface gas flow pressure regulator for closing off the release of gas flow and pressure from the opened gas formation of an opened hydrocarbon reservoir with a considerably high percentage of liquid hydrocarbons, in an annulus of the vertical wellbore and connecting horizontal and deviated wellbore annuluses, and the surface pressure gauge for measuring the surface wellbore annulus pressure, while simultaneously producing and recovering and monitoring at the surface production tubing string discharge all incoming liquid hydrocarbons entering the wellbore, so that previously incoming formation gas above the incoming liquids in the wellbore is maintained in the open gas zone, whereby conserving in place gas volume and pressure by the incoming liquid's greater hydrostatic head pressure which drives it through the downhole injector by pressure differential and into the lower pressure production tubing string on toward the surface for maximum liquid hydrocarbon production and ultimate recovery from a hydrocarbon formation.

13. The system as defined in Claim 12, further comprising:

the surface gas flow pressure regulator for closing off the wellbore annulus at the well head exit port such that all gases which are prevented from flowing and from entering the production tubing string by the injector are retained downhole within the opened upper gas zone for storing gases there for future production by the incoming higher pressure formation liquids in transit through the wellbore into the injector to be produced and recovered through the lower pressure production tubing string on to the surface, whereby maintained formation gas pressure assist by overhead pressure for the

maximum production and ultimate recovery of hydrocarbon formation fluids from the opened lower liquid hydrocarbon formation, wherein total in place gaseous and liquid hydrocarbon reserve recoverability and related value is notably increased.

14. The system as defined in Claim 13, further comprising:

the surface gas flow pressure regulator for closing off the wellbore annulus at the well head exit port throughout the complete production and total recovery of all in place liquid hydrocarbons until said production and recovery considerably declines, at such time converting over to total gas production by releasing the surface gas flow pressure to a full opened gas flow pressure at the surface gas flow regulator to efficiently produce and recover natural gas, whereby total in place liquid hydrocarbons have been recovered, leaving only the small quantities that stick to the formation rock pores as a thin film, and that are isolated in any formation structural traps, wherein in place gas is free to flow to the surface for total in place natural gas production and ultimate recovery, thereby recovering total in place liquid and gaseous hydrocarbons maintained and converted by this recovery process to be ultimately recoverable.

15. The system as defined in Claim 1, further comprising:

the surface gas flow pressure regulator for completely closing a wellbore annulus at the well head exit port in a well that has no surface gas sales line such as to prevent surface gas flaring, so that all gases which are prevented from flowing and from entering the production tubing string by the injector are retained downhole within the opened upper gas zone by incoming higher pressure liquids in transit through the wellbore for storing gases there for future production, such that the upper gas zone is assisted by maintained overhead pressure for the production and recovery of all incoming liquid hydrocarbons which enter the wellbore by their greater hydrostatic head pressure driving them through the downhole injector by pressure differential on up into the lower pressure production tubing string toward the surface for maximum production and ultimate recovery of hydrocarbon fluids from the opened liquid hydrocarbon formation, whereby early total in place liquid hydrocarbon recovery is economically realized at low cost,

wherein total in place gaseous and liquid hydrocarbon reserve value is significantly increased by becoming recoverable.

16. The system as defined in Claim 15, further comprising:

the surface gas flow pressure regulator for controlling the wellbore annulus gas flow pressure at the wellhead exit port to produce and recover natural gas in a well that has installed a gas sales line during the complete production and total recovery of all in place liquid hydrocarbons, recovering said liquids by a predetermined gas flow pressure, such that gas is retained in solution within the recovering liquid hydrocarbons, so that said liquids are always maintained recoverable, until liquid hydrocarbon production and recovery considerably decline, at such time converting over to total gas production by releasing the surface gas flow pressure to a fully opened gas flow pressure at the surface gas flow regulator to efficiently produce and recover natural gas, whereby total in place liquid hydrocarbons have been recovered, leaving only the small quantities that stick to the formation rock pores as a thin film, and that are isolated in any formation structural traps, wherein in place gas is free to flow to the surface for total in place natural gas production and ultimately recovery, thereby recovering total in place liquid and gaseous hydrocarbons maintained and converted by this recovery process to be ultimately recoverable.

17. The system as defined in Claim 1, further comprising:

the surface gas flow pressure regulator for controlling the wellbore annulus gas flow pressure at the wellhead exit port during the complete production and total recovery of all in place liquid hydrocarbons, recovering said liquids by a predetermined gas flow pressure, such that gas is retained in solution within the recovering liquid hydrocarbons, so that said liquids are always maintained recoverable, until liquid hydrocarbon production and recovery considerably decline, at such time converting over to total gas production by releasing the surface gas flow pressure to a fully opened gas flow pressure at the surface gas flow regulator to efficiently produce and recover natural gas, whereby total in place liquid hydrocarbons have been recovered, leaving only the small quantities that stick to the formation rock pores as a thin film, and that are isolated in any formation

structural traps, wherein in place gas is free to flow to the surface for total in place natural gas production and ultimate recovery, thereby recovering total in place liquid and gaseous hydrocarbons maintained and converted by this recovery process to be ultimately recoverable.

18. A method of producing and recovering liquids at the surface of a well in fluid communication with a downhole gaseous and liquid hydrocarbon formation, the liquids being produced and recovered through a production tubing string within a wellbore, the method comprising:

providing a surface gas flow pressure regulator and a surface pressure gauge on the casing well head annulus exit port for respectively controlling gas flow and pressure and measuring pressure while maintaining a predetermined flow pressure on the wellbore annulus;

providing perforations in the wellbore for fluid communication with the downhole hydrocarbon formation both above and bellow a gas-fluid interface separating fluids from a gas cap above the fluids;

providing a downhole injector for passing formation fluids by pressure differential through the injector and into the production tubing string while preventing gases from passing through the injector;

positioning a downhole pump within the production tubing string above the injector for pumping liquids to the surface;

pumping liquid inflow efficiently through the production tubing string to the surface of the well; and

maintaining direct fluid communication between the well and a formation gas zone and between the well and a formation hydrocarbon liquid zone beneath the gas zone, such that such gas pressure acts as a cap on the formation liquids to force the liquids out of the formation and through the injector toward the surface.

19. The method as defined in Claim 18, further comprising:

wherein the downhole injector is positioned relative to the downhole opened hydrocarbon formation in the wellbore so that all incoming liquid hydrocarbons are

efficiently and completely removed from the wellbore into the lower pressure production tubing string on to the surface thereby increasing gaseous and liquid hydrocarbon production and ultimate recovery.

20. The method as defined in Claim 18, further comprising:

continually and comparatively measuring and monitoring the formation gas flow production, pressure and related recovery for the most effective optimum gas flow pressure at the wells surface gas flow meter, and periodically making and observing fluid level and gas oil ratio test, while continually and comparatively measuring and monitoring production and recovery of formation liquids through a surface metering facility for a combined total maximum gaseous and liquid hydrocarbon production and ultimate recovery, throughout the reservoirs formations total gaseous and liquid hydrocarbon recovery life for maximum hydrocarbon reserve value.

21. The method as defined in Claim 18, further comprising:

while recovering formation liquids at the surface production tubing string discharge, simultaneously flowing formation gas production and pressure at a regulated and controlled gas flow pressure at the surface gas flow pressure regulator with the surface pressure gauge to retain a predetermined optimum formation gas pressure in an annulus about the production tubing string, and thereby on and within the downhole opened hydrocarbon formation, such that the gas pressure prevents solution gas within the liquid hydrocarbon in its formation and the wellbore from breaking out of solution, maintaining its expulsive force, high mobility and low viscosity, and acts as a driving force to pass pressured higher pressure hydrostatic head liquids out of the formation and through the injector by pressure differential on up into the lower pressure production tubing string to recover formation liquids at the surface, wherein total in place liquid hydrocarbons are maintained highly fluid and recoverable, thereby increasing related liquid hydrocarbon reserve value.

22. The method as defined in Claim 18, further comprising:

maintaining a predetermined optimum formation gas flow pressure in the wellbore annulus such that gas pressure acts as a driving force on all liquids to pass them though the injector by pressure differential up into the lower pressure production tubing string for formation fluid recovery at the surface so that a liquid level is maintained in the wellbore at the injector liquid in take level for maximum free gas and pressurized fluid flow from all opened hydrocarbon formations for maximum gaseous and liquid hydrocarbon recovery, whereby total gaseous and liquid hydrocarbon reserve recoverability and related value is increased.

23. The method as defined in Claim 18, further comprising:

maintaining a wellbore gas pressure in the annulus above the downhole injector intake liquid level as a driving force to maintain a predetermined liquid level in the lower pressure production tubing string for maximum artificial lift efficiency of incoming liquids on to the surface.

24. The method as defined in Claim 18, further comprising:

continually measuring and controllably regulating the release of gas flow and pressure at the surface gas flow pressure regulator for the most effective optimum flow pressure in an annulus about the production tubing string throughout the reservoirs formations total gaseous and liquid hydrocarbon recovery life for maximum recoverability of all in place hydrocarbons to increase hydrocarbon reserve value.

25. The method as defined in Claim 18, further comprising:

providing one or more gas lift valves as an alternative means for lifting liquids positioned along the production tubing string above the downhole injector for selectively, at a predetermined pressure, passing annulus gases through the production tubing string to raise incoming liquids in cycles as slugs of liquid to the surface through the production tubing string.

26. The method as defined in Claim 18, further comprising:

opening a wellbore with one or more horizontal and alternatively highly angled boreholes in a gas zone for maximum zone exposure and increased gas flow and recovery.

27. The method as defined in Claim 18, further comprising:

opening a wellbore with one or more horizontal and alternatively highly angled boreholes in a liquid hydrocarbon zone for maximum zone exposure and increased liquid hydrocarbon flow and recovery.

28. The method as defined in Claim 18, further comprising:

positioning a check valve within a production tubing string above the top of the injector for preventing fluids which pass by the check valve from returning to the injector; and

the injector housing having a nominal outer diameter, a fluid responsive float open at the top and closed at the bottom and moveable with respect to the injector housing as a function of fluid density surrounding the float, and a shut off valve member moveably responsive to the float for engagement with a shut off valve seat, the shut off valve member being spaced vertically below inside the injector housing from the check valve.

29. The method as defined in Claim 18, further comprising:

providing a sleeve-shaped filter screen across an inlet flow port of the injector for restricting at least 90% of solid particles 30 microns or greater from passing through the filter screen.

30. The method as defined in Claim 18, further comprising:

providing the well head surface gas flow pressure regulator for closing off the release of gas flow and pressure from the opened gas formation of an opened hydrocarbon reservoir with a considerably high percentage of liquid hydrocarbons in an annulus of the vertical wellbore and connecting horizontal and deviated wellbore annuluses, and the surface pressure gauge for measuring the surface wellbore annulus

pressure, while simultaneously producing and recovering and monitoring at the surface production tubing string discharge all incoming liquid hydrocarbons entering the wellbore, so that previously incoming formation gas in the wellbore above the incoming liquids is maintained in the opened gas zone, thereby conserving in place gas volume and pressure by the incoming liquid's greater hydrostatic head pressure which drives it through the pressure drop in the downhole injector and through the lower pressure production tubing string on to the surface for maximum liquid hydrocarbon production and ultimate recovery from a hydrocarbon formation.

31. The method as defined in Claim 30, further comprising:

providing the surface gas flow pressure regulator for closing off the wellbore annulus at the well head exit port such that all gases which are prevented form flowing and from entering the production tubing string by the injector are retained downhole within the opened upper gas zone for storing gases there for future production by the incoming higher pressure formation liquids in transit through the wellbore into the injector to be produced and recovered through the lower pressure production tubing string at the surface, whereby maintained formation gas pressure assist by overhead pressure for the maximum production and ultimate recovery of hydrocarbon formation fluids from the opened lower liquid hydrocarbon formation, wherein total in place gaseous and liquid hydrocarbon reserve recoverability and related value is notably increased.

32. The method as defined in Claim 31, further comprising:

providing the surface gas flow pressure regulator for closing off the wellbore annulus at the well head exit port throughout the complete production and total recovery of all in place liquid hydrocarbons until said production and recovery considerably decline, at such time converting over to total gas production by releasing the surface gas flow pressure to a full opened gas flow pressure at the surface gas flow regulator to efficiently produce and recover natural gas, whereby total in place liquid hydrocarbons have been recovered, leaving only the small quantities that stick to the formation rock pores as a thin film and that are isolated in any formation structural traps, wherein total in place gas is free to flow to the surface for total in place natural gas production and

ultimate recovery, thereby recovering total in place liquid and gaseous hydrocarbons maintained and converted by this recovery process to be ultimately recoverable.

33. The method as defined in Claim 18, further comprising:

providing the surface gas flow pressure regulator for completely closing a wellbore annulus at the well head exit port in a well that has no surface gas sales line, such as to prevent surface gas flaring, so that all gases which are prevented from flowing and from entering the production tubing string by the injector are retained downhole within the opened upper gas zone for storing gases there for future production by incoming higher pressure liquids in transit through the wellbore, such that the upper gas zone assist by overhead pressure for the production and recovery of all incoming liquid hydrocarbons entering the wellbore by their greater hydrostatic head pressure driving them through the downhole injector by pressure differential on up into the lower pressure production tubing string toward the surface for maximum production and ultimate recovery of hydrocarbon fluids from the opened liquid hydrocarbon formation, whereby early total in place liquid hydrocarbon recovery is economically realized at low cost, wherein total in place gaseous and liquid hydrocarbon reserve value is significantly increased by becoming recoverable.

34. The method as defined in Claim 33, further comprising:

providing the surface gas flow pressure regulator for controlling the wellbore annulus gas flow pressure at the wellhead exit port to produce and recover natural gas in a well that has installed a gas sale line during the complete production and total recovery of all in place liquid hydrocarbons, recovering said liquids by a predetermined gas flow pressure, such that gas is retained in solution within the recovering liquid hydrocarbons, so that said liquids are always maintained recoverable, until liquid hydrocarbon production and recovery considerably decline, at such time converting over to total gas production by releasing the surface gas flow pressure to a fully opened gas flow pressure at the surface gas flow regulator to efficiently produce and recover natural gas, whereby total in place liquid hydrocarbons have been recovered, leaving only the small quantities that stick to the formation rock pores as a thin film, and that are isolated in any formation

structural traps, wherein in place gas is free to flow to the surface for total in place natural gas production and ultimate recovery, thereby recovering total in place liquid and gaseous hydrocarbons maintained and converted by this recovery process to be ultimately recoverable.

35. The method as defined in Claim 18, further comprising:

maintaining a predetermined optimum flow pressure to produce both natural gas and liquid hydrocarbons under a state of equilibrium, thereby providing a more efficient drainage mechanism such that gas remains on top of liquid hydrocarbons within the reservoir's formations, utilizing gas energy and the principles of gravity separation to eliminate undesirable coning and loss of free gas and solution gas through the liquid hydrocarbon formation into the wellbore, whereby liquid and gaseous hydrocarbons are maintained pressured and as recoverable flowing fluids with a more effective overhead gas cap pressure drive, wherein total in place gaseous and liquid hydrocarbon reserve recoverability and related value is notably increased.

36. The method as defined in Claim 18, further comprising:

providing the surface gas flow pressure regulator for controlling the wellbore annulus gas flow pressure at the wellhead exit port during the complete production and total recovery of all in place liquid hydrocarbons, recovering said liquids by a predetermined gas flow pressure, such that gas is retained in solution within the recovering liquid hydrocarbons, so that said liquids are always maintained recoverable, until liquid hydrocarbon production and recovery considerably decline, at such time converting over to total gas production by releasing the surface gas flow pressure to a fully opened gas flow pressure at the surface gas flow regulator to efficiently produce and recover natural gas, whereby total in place liquid hydrocarbons have been recovered, leaving only the small quantities that stick to the formation rock pores as a thin film, and that are isolated in any formation structural traps, wherein in place gas is free to flow to the surface for total in place natural gas production and ultimate recovery, thereby recovering total in place liquid and gaseous hydrocarbons maintained and converted by this recovery process to be ultimately recoverable.

37. A system for increasing production and ultimate recovery of gaseous and liquid hydrocarbons from one or more downhole natural gas baring formations and through a production tubing string within a wellbore by complete removal of liquids from the wellbore and utilizing gas pressure drive of the natural gas baring formation, the system comprising:

the wellbore being perforated for fluid communication with one or more downhole gas baring formations both above and bellow a gas-fluid interface;

a surface gas flow pressure regulator and a surface pressure gauge provided on the casing well head annulus exit port for regulating gas flow and pressure and to maintain a predetermined flow pressure on the wellbore annulus;

a downhole injector positioned at the bottom of the production tubing string relative to the lowest opened formation;

the downhole injector for passing formation liquids by pressure differential through the production tubing string toward the surface while preventing formation gases from entering the production tubing string;

a downhole pump positioned within a production tubing string above the injector for pumping liquids to the surface;

the downhole pump for efficiently pumping liquid inflow through the production tubing string to the surface of the well; and

the wellbore with maintained direct fluid communication with one or more opened gas baring formations and liquids entering from the lower part of the formations, such that such gas pressure acts as a cap on the formation fluids in the opened formation to force the fluids out of the formation into the wellbore through the injector and toward the surface.

38. The system as defined in Claim 37, further comprising:

the downhole injector being positioned relative to the lowest downhole opened gas baring formation so that all incoming liquid hydrocarbons and invading waters are efficiently and completely removed from the wellbore into the production tubing string on to the surface for increased gaseous and liquid hydrocarbon recovery.

39. The system as defined in Claim 37, further comprising:

wherein the well has a surface gas flow meter for continually and comparatively measuring and monitoring the formation gas flow production, pressure and recovery for the most effective optimum gas flow pressure at the surface, and periodically making and observing fluid level test, while continually and comparatively measuring and monitoring the production and recovery of formation liquids through a surface metering facility for a combined total maximum gaseous and liquid hydrocarbon production and ultimate recovery, throughout the reservoir's formations total gaseous and liquid hydrocarbon recovery life for maximum hydrocarbon reserve value.

40. The system as defined in Claim 37, further comprising:

the surface gas flow pressure regulator and the surface pressure gauge for continually and controllably and comparatively regulating flowing formation gas production and pressure at a controlled flow pressure to retain a predetermined optimum formation gas pressure in an annulus about the production tubing string, and thereby on and within all opened hydrocarbon formations, such that the gas pressure prevents solution gas within the liquid hydrocarbon in its formation and the wellbore from breaking out of solution, whereby maintaining its expulsive force, high mobility and low viscosity, and acts as a driving force to pass pressured higher pressure hydrostatic head liquids out of the formation and through the injector by pressure differential up into the lower pressure production tubing string to recover formation liquids at the surface, wherein total in place liquid hydrocarbons are maintained highly fluid and recoverable, thereby increasing related liquid hydrocarbon reserve value.

41. The system as defined in Claim 37, further comprising:

the wellbore annulus with a maintained predetermined formation gas pressure such that gas pressure acts as a driving force on all liquid hydrocarbons and any invading waters to pass them through the injector by pressure differential up into the lower pressure production tubing string for formation fluid recovery at the surface, so that a liquid level is maintained in the wellbore at the injector liquid intake level for maximum

free gas and pressurized fluid flow from all opened hydrocarbon formations for maximum gaseous and liquid hydrocarbon recovery, whereby total gaseous and liquid hydrocarbon reserve recoverability and related value is increased.

42. The system as defined in Claim 37, further comprising:

the wellbore with maintained gas pressure in the annulus above the downhole injector intake liquid level as a driving force to maintain a predetermined liquid level in the lower pressure production tubing string for maximum artificial lift efficiency of incoming liquids on to the surface.

43. The system as defined in Claim 37, further comprising:

one or more gas lift valves as an alternative means for lifting liquids positioned along the production tubing string above the downhole injector for selectively passing annulus gases through the production tubing string to raise incoming liquids as slugs of liquid to the surface through the production tubing string.

44. The system as defined in Claim 37, further comprising:

the wellbore opened with one or more horizontal and alternatively highly angled boreholes in a gas zone for maximum zone exposure and increased gas flow and recovery.

45. The system as described in Claim 37, further comprising:

the wellbore opened with one or more horizontal and alternatively highly angled boreholes in a liquid hydrocarbon zone for maximum zone exposure and increased liquid hydrocarbon flow and recovery.

46. The system as defined in Claim 37, further comprising:

a check valve in the tubing string above the top of the injector; and the injector including an injector housing having a nominal outer diameter, a fluid responsive float open at the top and closed at the bottom and moveable with respect to the injector housing as a function of fluid density surrounding the float, and a shut off valve member

moveably responsive to the float for engagement with a shut off valve seat, the shut off valve member being spaced vertically below inside the injector housing from the check valve.

47. The system as defined in Claim 37, wherein the injector includes a sleeve shaped filter screen for restricting at least 90% of solid particles of 30 microns or greater from passing through the filter screen.

48. The system as defined in Claim 37, further comprising:

the well head surface gas flow pressure regulator for closing off the release of gas flow and pressure in an opened hydrocarbon reservoir with a considerable high volume of liquid hydrocarbons in one or more opened gas baring formations and one or more opened liquid hydrocarbon formations in an annulus of the vertical wellbore and connecting horizontal and deviated wellbore annuluses, and the surface pressure gauge for measuring the surface wellbore annulus pressure, while simultaneously producing and recovering and monitoring at the surface production tubing string discharge all incoming liquid hydrocarbons and invading waters entering the wellbore, so that previously incoming formation gas above the liquids in the wellbore is maintained in the open gas zone, whereby conserving in place gas volume and pressure by the incoming liquid's greater hydrostatic head pressure which drives it through the downhole injector by pressure differential and into the lower pressure production tubing string on toward the surface for maximum liquid hydrocarbon production and ultimate recovery and ultimately total gaseous hydrocarbon recovery from a hydrocarbon formation.

49. The system as defined in Claim 48, further comprising:

the surface gas flow pressure regulator for closing off the wellbore annulus at the well head exit port such that all gases which are prevented from flowing and from entering the production tubing string by the injector are retained downhole within the opened upper gas zone for storing gases there for future production by the incoming higher pressure formation liquids in transit through the wellbore into the injector to be produced and recovered through the lower pressure production tubing string on to the

surface, whereby maintained formation gas pressure assist by overhead pressure for the maximum production and ultimate recovery of hydrocarbon formation fluids from the opened lower liquid hydrocarbon formation, wherein total in place gaseous and liquid hydrocarbon reserve recoverability and related value are notably increased.

50. The system as defined in Claim 49, further comprising:

the surface gas flow pressure regulator for closing off the wellbore annulus at the well head exit port throughout the complete production and total recovery of all in place liquid hydrocarbons until said production and recovery considerably decline, at such time converting over to total gas production by releasing the surface gas flow pressure to a lower optimum flow pressure at the surface gas flow regulator to efficiently produce and recover natural gas, while efficiently removing any incoming invading waters in the wellbore, whereby total in place liquid hydrocarbons have been recovered, leaving only the small quantities that stick to the formation rock pores as a thin film, and that are isolated in any formation structural traps, wherein total in place gas is free to flow to the surface for total in place natural gas production and ultimate recovery, thereby recovering total in place liquid and gaseous hydrocarbons maintained and converted by this recovery process to be ultimately recoverable.

51. The system as defined in Claim 37, further comprising:

the surface gas flow pressure regulator for completely closing a wellbore annulus at the wellhead exit port in one or more opened gas baring formations and in one or more opened liquid hydrocarbon formations in a well that has no surface gas sales line, such as to prevent surface gas flaring, so that all gases which are prevented from flowing and from entering the production tubing string by the injector are retained downhole within all opened upper gas zones by incoming higher pressure liquids in transit through the wellbore for storing gases there for future production, such that the upper gas zone is assisted by maintained overhead pressure for the production and recovery of all incoming liquid hydrocarbons and invading waters which enter the wellbore by their greater hydrostatic head pressure driving them through the downhole injector by pressure differential on up into the lower pressure production tubing string toward the surface for

maximum production and ultimate recovery of hydrocarbon fluids from all opened liquid hydrocarbon formations, whereby early total in place liquid hydrocarbon recovery is economically realized at low cost, wherein total in place gaseous and liquid hydrocarbon reserve value is considerably increased by becoming recoverable.

52. The system as defined in Claim 51, further comprising:

the surface gas flow pressure regulator for controlling the wellbore annulus flow pressure at the wellhead exit port to produce and recover natural gas in a well that has installed a gas sales line during the complete production and total recovery of all in place liquid hydrocarbons, recovering said liquids by a predetermined gas flow pressure, such that gas is retained in solution within the recovering liquid hydrocarbons, so that said liquids are always maintained recoverable, until liquid hydrocarbon production and recovery considerably decline, at such time converting over to total gas production by releasing the surface gas flow pressure to a lower optimum gas flow pressure at the surface gas flow regulator to efficiently produce and recover natural gas while removing any incoming invading waters, whereby total in place liquid hydrocarbons have been recovered, leaving only the small quantities that stick to the formation rock pores as a thin film, and that are isolated in any formation structural traps, wherein in place gas is free to flow to the surface for total in place natural gas production and ultimate recovery, thereby recovering total in place liquid and gaseous hydrocarbons maintained and converted by this recovery process to be ultimately recoverable.

53. The system as defined in Claim 37, further comprising:

the surface gas flow pressure regulator for controlling the wellbore annulus flow pressure at the wellhead exit port during the complete production and total recovery of all in place liquid hydrocarbons, recovering said liquids by a predetermined gas flow pressure, such that gas is retained in solution within the recovering liquid hydrocarbons, so that said liquids are always maintained recoverable, until liquid hydrocarbon production and recovery considerably decline, at such time converting over to total gas production by releasing the surface gas flow pressure to a lower optimum gas flow pressure at the surface gas flow regulator to efficiently produce and recover

natural gas while removing any incoming invading waters, whereby total in place liquid hydrocarbons have been recovered, leaving only the small quantities that stick to the formation rock pores as a thin film, and that are isolated in any formation structural traps, wherein in place gas is free to flow to the surface for total in place natural gas production and ultimate recovery, thereby recovering total in place liquid and gaseous hydrocarbons maintained and converted by this recovery process to be ultimately recoverable.

54. A method of increasing production and ultimate recovery of gaseous and liquid hydrocarbons from one or more downhole natural gas baring formations and through a production tubing string within a wellbore by complete removal of liquids from the wellbore and utilizing gas pressure drive of a natural gas baring formation, the method comprising:

the wellbore being perforated for fluid communication with one or more downhole hydrocarbon formations both above and bellow a gas-fluid interface;

providing a surface gas flow pressure regulator and a surface pressure gauge on the casing well head annulus exit port for respectively regulating gas flow production and measuring pressure while maintaining a predetermined flow pressure on the wellbore annulus;

positioning a downhole injector at the bottom of a production tubing string relative to the lowest opened formation;

passing formation fluids through the downhole injector by pressure differential and through the production tubing string toward the surface while preventing formation gases from entering the production tubing string;

positioning a downhole pump within a production tubing string above the injector for pumping liquids to the surface;

pumping liquid inflow efficiently through the production tubing string to the surface of the well; and

maintaining direct fluid communication between the wellbore and one or more opened gas baring formations and liquids entering from the lower part of the formations, such that such gas pressure acts as a cap on the formation fluids in the opened formation

to force the fluids out of the formation into the wellbore through the injector and toward the surface.

55. The method as defined in Claim 54, further comprising:

wherein the downhole injector is positioned relative to the lowest downhole opened gas baring formation in the wellbore so that all incoming liquid hydrocarbons and invading waters are efficiently and completely removed from the wellbore into the lower pressure production tubing string on to the surface thereby increasing gaseous and liquid hydrocarbon recovery.

56. The method as defined in Claim 54, further comprising:

continually and comparatively measuring and monitoring the formation gas flow production, pressure and related recovery for the most effective optimum gas flow pressure at the wells surface gas flow meter and periodically making and observing fluid level and gas-oil ratio test, while continually and comparatively measuring and monitoring the production and recovery of formation liquids through a surface metering facility for a combined total maximum gaseous and liquid hydrocarbon production and ultimate recovery throughout the reservoir's formations total gaseous and liquid hydrocarbon recovery life for maximum hydrocarbon reserve value.

57. The method as defined in Claim 54, further comprising:

while recovering formation liquids at the surface production tubing string discharge, simultaneously flowing formation gas production and pressure at a regulated and controlled predetermined gas flow pressure at the surface gas flow pressure regulator with the surface gas pressure gauge to retain an optimum formation gas pressure in an annulus about the production tubing string, and thereby on and within all opened hydrocarbon formations, such that the gas pressure prevents solution gas within the liquid hydrocarbon in its formation and the wellbore from breaking out of solution, thereby maintaining its expulsive force, high mobility and low viscosity, and acts as a driving force to pass pressured higher pressure hydrostatic head liquids out of the formation and through the injector by pressure differential on up into the lower pressure production

tubing string to recover formation liquids at the surface, wherein total in place liquid hydrocarbons are maintained highly fluid and recoverable, thereby increasing related liquid hydrocarbon reserve value.

58. The method as defined in Claim 54, further comprising:

maintaining a predetermined optimum formation gas flow pressure in the wellbore annulus such that gas pressure acts as a driving force on all liquid hydrocarbons and invading waters to pass them through the injector by pressure differential into the lower pressure production tubing string for formation fluid recovery at the surface, so that a liquid level is maintained in the wellbore at the injector liquid in take level for maximum free gas and pressurized fluid flow from all opened hydrocarbon formations for maximum gaseous and liquid hydrocarbon recovery, whereby total gaseous and liquid hydrocarbon reserve recoverability and related value is increased.

59. The method as defined in Claim 54, further comprising:

maintaining a wellbore gas pressure in the annulus above the downhole injector intake liquid level as a driving force to maintain a predetermined liquid level in the lower pressure production tubing string for maximum artificial lift efficiency of incoming liquids on to the surface.

60. The method as defined in Claim 54, further comprising;

providing one or more gas lift valves as an alternative means for lifting liquids positioned along the production tubing string above the downhole injector for selectively, at a predetermined pressure, passing annulus gases through the production tubing string to raise incoming liquids as slugs of liquid to the surface through the production tubing string.

61. The method as defined in Claim 54, further comprising:

opening the wellbore with one or more horizontal and alternatively highly angled boreholes in a gas zone for maximum zone exposure and increased gas flow and recovery.

62. The method as defined in Claim 54, further comprising:

opening the wellbore with one or more horizontal and alternatively highly angled boreholes in a liquid hydrocarbon zone for maximum zone exposure and increased liquid hydrocarbon flow and recovery.

63. The method as defined in Claim 54, further comprising:

positioning a check valve within a production tubing string above the top of the injector for preventing fluids which pass by the check valve from returning to the injector; and

the injector housing having a nominal outer diameter, a fluid responsive float open at the top and closed at the bottom and moveable with respect to the injector housing as a function of fluid density surrounding the float, and a shut off valve member moveably responsive to the float for engagement with a shut off valve seat, the shut off valve member being spaced vertically below inside the injector housing from the check valve.

64. The method as defined in Claim 54, further comprising:

providing a sleeve-shaped filter screen across an inlet flow port of the injector for restricting at least 90% of solid particles 30 microns or greater from passing through the filter screen.

65. The method as defined in Claim 54, further comprising:

providing the well head surface gas flow pressure regulator for closing off the release of gas flow and pressure in an opened hydrocarbon reservoir with a considerable high volume of liquid hydrocarbons in one or more opened gas baring formations with one or more opened liquid hydrocarbon formations in an annulus of the vertical wellbore and all connecting horizontal and deviated wellbore annuluses, and the surface pressure gauge for measuring the surface wellbore annulus pressure, while simultaneously producing and recovering and monitoring at the surface production tubing string discharge all incoming liquid hydrocarbons and invading waters entering the wellbore, so

that previously incoming formation gas in the wellbore above the incoming liquids is maintained in all opened gas zones, whereby conserving in place gas volume and pressure by the incoming liquid's greater hydrostatic head pressure which drives it through the pressure drop in the downhole injector and through the lower pressure production tubing string on to the surface for maximum liquid hydrocarbon production and ultimate recovery and ultimately total gaseous hydrocarbon recovery from a hydrocarbon formation.

66. The method as defined in Claim 65, further comprising:

providing the surface gas flow pressure regulator for closing off the wellbore annulus at the well head exit port such that all gases which are prevented form flowing and from entering the production tubing string by the injector are retained downhole within all opened upper gas zones for storing gases there, for future production by the incoming higher pressure formation liquids in transit through the wellbore into the injector to be produced and recovered through the lower pressure production tubing string at the surface, whereby maintained formation gas pressure assist by overhead pressure for the maximum production and ultimate recovery of hydrocarbon formation fluids from all opened liquid hydrocarbon formations, wherein total gaseous and liquid hydrocarbon reserve recoverability and related value is notably increased.

67. The method as defined in Claim 66, further comprising:

providing the surface gas flow pressure regulator for closing off the wellbore annulus at the well head exit port throughout the complete production and total recovery of all in place liquid hydrocarbons until said production and recovery considerably declines, at such time converting over to total gas production by releasing the surface gas flow pressure to a lower predetermined optimum flow pressure at the surface gas flow regulator to efficiently produce and recover natural gas while efficiently removing any incoming invading waters in the wellbore, whereby total in place liquid hydrocarbons have been recovered, leaving only the small quantities that stick to the formation rock pores as a thin film, and that are isolated in any formation structural traps, wherein total in place gas is free to flow to the surface for total in place natural gas

production and recovery, thereby recovering total in place liquid and gaseous hydrocarbons maintained and converted by this recovery process to be ultimately recoverable.

68. The method as defined in Claim 54, further comprising:

providing the surface gas flow pressure regulator for completely closing a wellbore annulus at the wellhead exit port in one or more opened gas baring formations and in one or more opened liquid hydrocarbon formations in a well that has no surface gas sales line, such as to prevent surface gas flaring, so that all gases which are prevented from flowing and from entering the production tubing string by the injector are retained downhole by incoming higher pressure liquids in transit through the wellbore within the opened upper gas zone for storing gases there for future production, such that all upper gas zones assist by overhead pressure for the production and recovery of all incoming liquid hydrocarbons and invading waters entering the wellbore by their greater hydrostatic head pressure, driving them through the downhole injector by pressure differential on up into the lower pressure production tubing string toward the surface for maximum production and ultimate recovery of hydrocarbon fluids from all opened liquid hydrocarbon formations, whereby early total in place liquid hydrocarbon recovery is economically realized at low cost, wherein total in place gaseous and liquid hydrocarbon reserve value is considerably increased by becoming recoverable.

69. The method as defined in Claim 68, further comprising:

providing the surface gas flow pressure regulator for controlling the wellbore annulus gas flow pressure at the wellhead exit port to produce and recover natural gas in a well that has installed a gas sales line during the complete production and total recovery of all in place liquid hydrocarbons, recovering said liquids by a predetermined gas flow pressure, such that gas is retained in solution within the recovering liquid hydrocarbons, so that said liquids are always maintained recoverable, until liquid hydrocarbon production and recovery considerably decline, at such time converting over to total gas production by releasing the surface gas flow pressure to a lower optimum gas flow pressure at the surface gas flow regulator to efficiently produce and recover

natural gas while removing any and all incoming invading waters, whereby total in place liquid hydrocarbons have been recovered, leaving only the small quantities that stick to the formation rock pores as a thin film, and that are isolated in any formation structural traps, wherein in place gas is free to flow to the surface for total in place natural gas production and ultimate recovery, thereby recovering total in place liquid and gaseous hydrocarbons maintained and converted by this recovery process to be ultimately recoverable.

70. The method as defined in Claim 54, further comprising:

maintaining a predetermined optimum flow pressure to produce both natural gas and liquid hydrocarbons under a state of equilibrium thereby providing a more efficient drainage mechanism such that gas remains on top of liquid hydrocarbons within all opened hydrocarbon reservoirs' formations utilizing gas energy and the principles of gravity separation to eliminate undesirable coning and loss of free gas and solution gas through all opened liquid hydrocarbon formations into the wellbore, whereby gaseous and liquid hydrocarbons are maintained pressured and as recoverable flowing fluids with a more effective overhead gas cap pressure drive, wherein total in place gaseous and liquid hydrocarbon reserve recoverability and related value is substantially increased.

71. The method as defined in Claim 54, further comprising:

providing the surface gas flow pressure regulator for controlling the wellbore annulus gas flow pressure at the wellhead exit port during the complete production and total recovery of all in place liquid hydrocarbons, recovering said liquids by a predetermined gas flow pressure, such that gas is retained in solution within the recovering liquid hydrocarbons, so that said liquids are always maintained recoverable, until liquid hydrocarbon production and recovery considerably decline, at such time converting over to total gas production by releasing the surface gas flow pressure to a lower optimum gas flow pressure at the surface gas flow regulator to efficiently produce and recover natural gas while removing any incoming invading waters, whereby total in place liquid hydrocarbons have been recovered, leaving only the small quantities that stick to the formation rock pores as a thin film, and that are isolated

in any formation structural traps, wherein in place gas is free to flow to the surface for total in place natural gas production and ultimate recovery, thereby recovering total in place liquid and gaseous hydrocarbons maintained and converted by this recovery process to be ultimately recoverable.